



# Guiding Principles & Lessons Learned for More Effective Monitoring Programs

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# Outline



- ◆ Why Monitor?
- ◆ The Importance of Scale
- ◆ 3 Types of Monitoring
  - Watershed assessments
  - BMP effectiveness
  - TMDL information



# Why Monitor?



- ◆ Gauge Effectiveness of Programs
- ◆ Check Compliance with Permits
- ◆ Measure Health of Receiving Waters



# Only monitor when:



- ◆ you suspect that you'll get information that will lead to a better or different action / decision
- ◆ the data will be used -- not just useful
- ◆ you've asked yourself:



# Why?

why?, why?, why?, why?, why?, why?,  
why?, why?, ...

# The Importance of Scale

- ◆ National – WERF Stormwater Research Program
- ◆ State
  - SWRCB Surface Water Ambient Monitoring Program (SWAMP)
  - Caltrans Statewide Monitoring Program
  - SWQTF Research Agenda
- ◆ Regional
  - RWQCB Regional Monitoring and Assessment Strategy (RMAS)
  - BASMAA Regional Monitoring Strategy (BRMS)
  - So. California Stormwater Monitoring Coalition Research Agenda
- ◆ Local / Watershed – example: San Francisquito Creek Long-Term Monitoring and Assessment Plan (LTMAP)

# Watershed Assessments

- ◆ A lot of new tools available:
  - Rapid biological assessments
  - Sediment budgets / Water budgets
  - Geomorphic assessments / Hydrogeomorphic assessments
- ◆ Every tool (assessment methodology) has its job (management question-monitoring objective)
- ◆ Methodologies versus Questions / Objectives
- ◆ Motive→Question→Objective→Study Design (including methodology)



# BMP Effectiveness



- ◆ Need more studies than installations
- ◆ Need more coordination and understanding than studies necessarily
- ◆ Public agencies shouldn't be beta-testers
- ◆ Achievement versus Effort





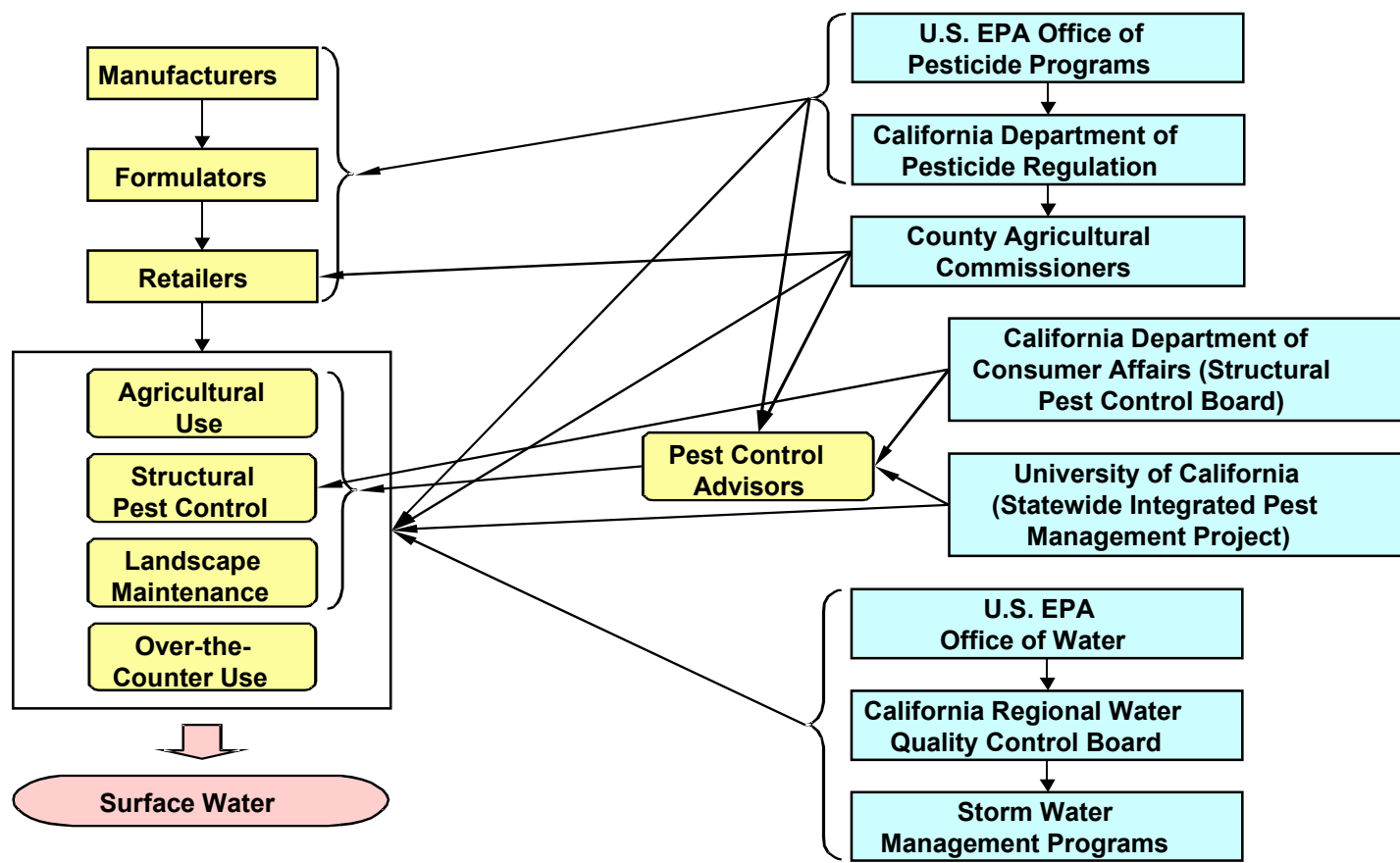
# TMDL Information



- ◆ Loadings are a means, not an end
- ◆ Loadings are not a be-all, end-all
- ◆ Snapshot versus Movie
- ◆ Fate and Transport / Sources and Pathways Diagrams

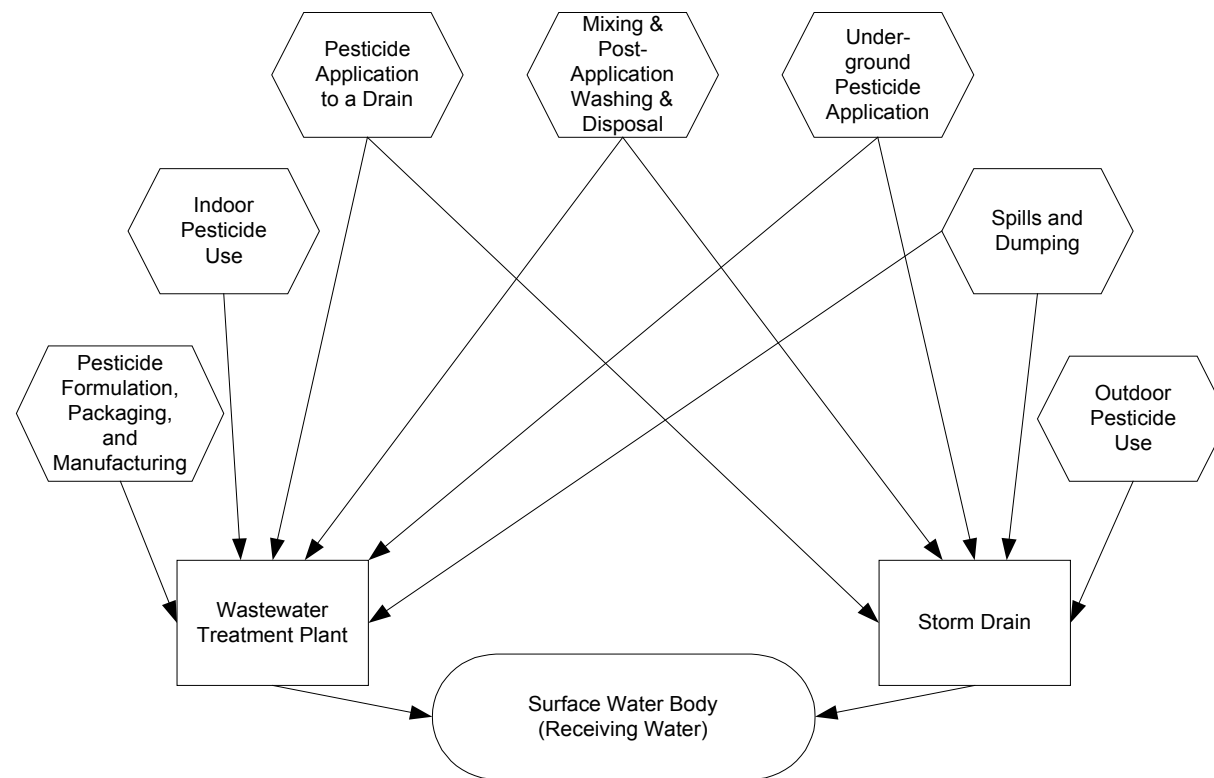
# Sources and pathways

## Example - Pesticides



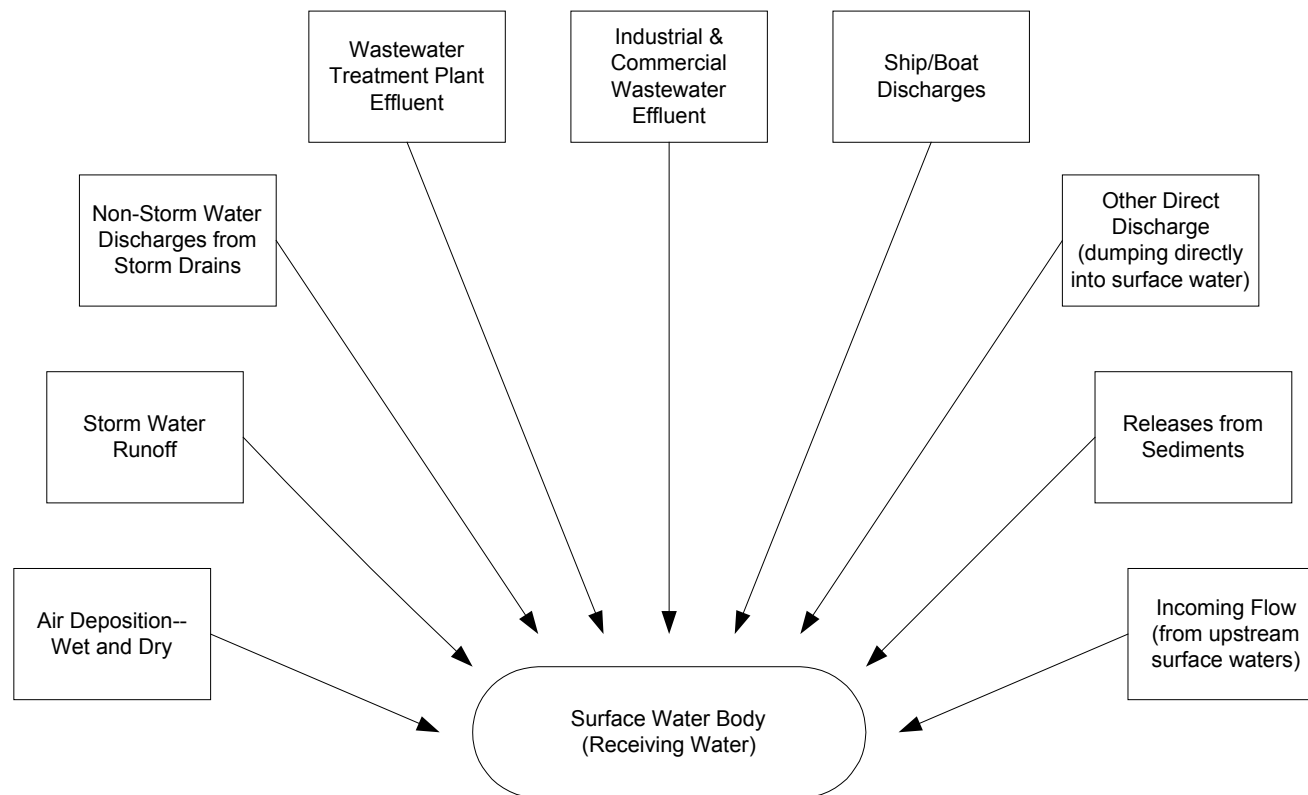
# Sources and pathways II

## Major Pathways from Common Urban Diazinon and Chlorpyrifos Uses to Surface Waters



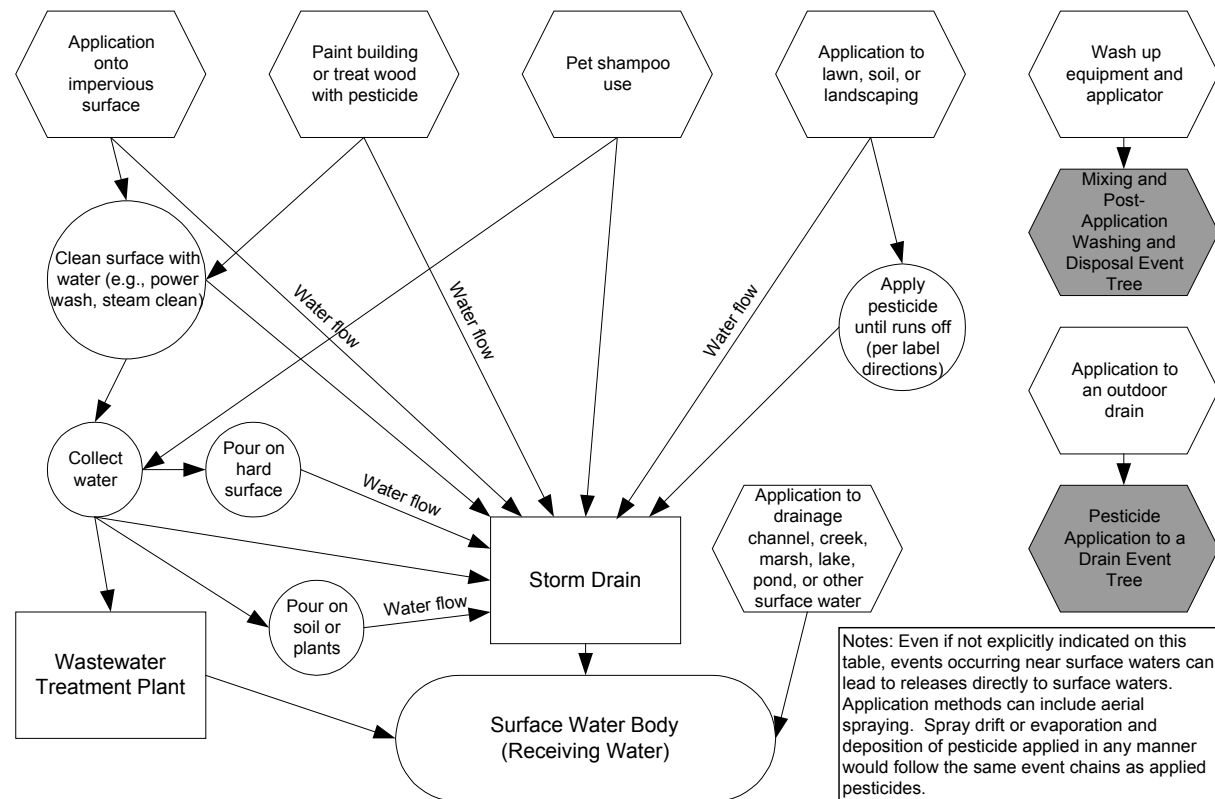
# Sources and pathways III

## Pathways for Urban Pesticide Release to Surface Waters



# Sources and Pathways IV

## Outdoor Pesticide Use



# Management $\leftrightarrow$ Science

- ◆ Who – Organization match the monitoring?
- ◆ Why – Clear and specifically defined?
- ◆ How – Method appropriate to the question?
- ◆ What – Monitoring the right thing, in the right place, at the right time? (i.e., at the “point” at which we can have maximum effect on a pollutant = the control point)